

Stimulating Proenvironmental Behavior at Work with Informal Controls

Estimulando Comportamento Pró-Ambiental no Trabalho por meio de Controles Informais

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Abstract:

This paper examines whether an informal control in the form of a communicated value statement can activate appropriate employees' personal norms to promote their proenvironmental behavior. An experimental design with undergraduate students is used where the value statement is manipulated in three-levels between-participants (environmental versus financial versus absent). Personal norms are measured, and participants are classified as holding an environmental or a business personal norm. Data is analyzed using mean-comparison test, regression analysis, and structural equations-based path analysis. Results from the sample of participants show that: financial value statements reduce employees' activation of business personal norms relative to an environmental value statement; environmental personal norms increase proenvironmental behavior at work, while business personal norms decrease proenvironmental behavior at work; and, finally, environmental value statements marginally decrease employees' proenvironmental behavior through activated business personal norms when compared to a financial value statement. The main results of this study contribute to the literature on the behavioral effects of informal controls by showing the process through which a value statement can influence employees' proenvironmental behavior. The main practical implication of this paper is that organizations willing to promote employees' proenvironmental behavior is better off by not communicating an environmental value statement that, at least for this sample of participants, can lead employees to focus on tradeoffs between short-term costs of environmental initiatives versus long-term benefits of environmental protection.

Keywords: informal controls; value statement; personal norms; proenvironmental behavior.

Resumo:

Este estudo examina se um controle informal na forma de uma comunicação de declaração de valores pode ativar normas pessoais dos colaboradores que sejam apropriadas para promover comportamento pró-ambiental. Um desenho experimental com estudantes de graduação é utilizado em que a declaração de valores é manipulada em três níveis entre participantes (ambiental *versus* financeira *versus* ausente). Normas pessoais são mensuradas e os participantes são classificados como possuindo uma norma pessoal ambiental ou de negócios. A análise dos dados inclui teste de comparação de medias, análise de regressão e análise de equações estruturais. Tendo em vista os participantes desta pesquisa, os resultados demonstram que: declarações de valor com foco financeiro reduzem a ativação de normas pessoais de negócios quando comparadas com declarações de valor com foco ambiental; normas pessoais ambientais aumentam o comportamento pró-ambiental no trabalho, enquanto normas pessoais de negócios reduzem o comportamento pró-ambiental no trabalho; e, finalmente, declarações de valor com foco ambiental, relativamente a declarações de valor com foco financeiro, causam uma redução marginal no comportamento pró-ambiental dos colaboradores através da ativação

de normas pessoais de negócios. Os principais resultados deste estudo contribuem para a literatura sobre os efeitos comportamentais de controles informais ao evidenciar o processo pelo qual uma demonstração de valor pode influenciar o comportamento pró-ambiental dos colaboradores. A principal implicação prática deste estudo é que organizações interessadas em promover o comportamento pró-ambiental de seus colaboradores ficam em melhor situação ao não comunicarem uma demonstração de valores com foco ambiental que, pelo menos para os participantes desta pesquisa, possa levar os colaboradores a se concentrarem nas trocas compensatórias entre custos de curto prazo de iniciativas ambientais *versus* benefícios de longo prazo de proteção ambiental.

Palavras-chave: controles informais; declaração de valores; normas pessoais; comportamento pró-ambiental.

1. INTRODUCTION

Employees typically face decisions in which they have to tradeoff environmental protection and financial returns such as making additional investments to reduce the emission of greenhouse gas, soil and water contamination, and the reliance on natural resources. Organizations in turn implement control mechanisms to help and influence employees to make decisions that are aligned with corporate short- and long-term goals (Malmi & Brown, 2008). Particularly, organizations can implement informal controls in the form of a value statement that affect employees' behavior through mechanisms such as unwritten policies, group norms, and shared values (Aguiar, 2021; Berry et al., 2009; Ouchi, 1979).

Value statements are part of the management control package and are classified as a type of informal control (Simons, 1995; Malmi & Brown, 2008; Johnstone, 2018; Andrejko et al., 2022). This informal control conveys at least one prioritized goal and can act as a behavioral norm that exerts social pressure on employees to perform value-consistent behaviors (O'Reilly et al., 1991; Akinyele et al., 2022). Particularly, value statements can signal the importance of sustainability and environmental actions for the organization (e.g., Arjaliès & Mundy, 2013; Baker et al., 2018). However, prior evidence has suggested that value statements have no direct effect on employees' behavior (Kachelmeier et al., 2016; Aguiar, 2021). Additionally, value statements can have negative impact if they are perceived as cynical and blank messages (Urbany, 2005). Therefore, it is still not clear whether and how a value statement can stimulate employees' desirable behaviors, such as proenvironmental behavior (PEB). Given this research gap, the purpose of this paper is to examine the process through which a communicated value statement can affect employees' proenvironmental behavior.

The key argument developed in this paper is that a value statement can activate appropriate personal norms that in turn will lead employees to follow behaviors that are consistent with the activated personal norms. Employees carry multiple personal norms (March, 1994; Cialdini & Jacobson, 2021) and the personal norm that is activated in a specific situation depends in part on the decision context (Schwartz, 1977). In a decision context where a conflict exists between environmental and financial goals, *environmental* and/or *business* personal norms can be activated that favor environmental protection and/or financial returns. Overall, employees will follow behaviors that are value-consistent with the activated personal norms in the decision context (Thøgersen & Ölander, 2006) and will then be expected to engage in activities to protect the environment when appropriate personal norms are activated (Hemingway & MacLagan, 2004; Ones et al., 2015; Li et al., 2019).

Organizations can communicate value statements with prioritized values as part of the decision context to signal appropriate courses of action to employees (Marginson, 2009; Berry et al., 2009; Akinyele et al., 2020). Communicated value statements can then be a trigger for personal norm activation. In a setting where the main executive communicates a value

statement prioritizing either environmental protection (*environmental* value statement) or financial returns (*financial* value statement), the expectation is that environmental personal norms will be primarily activated when environmental value statements are communicated, while business personal norms will be mainly activated when financial value statements are communicated.

Activated personal norms in favor of either environmental or business values will favor a particular behavior and increase the likelihood that employees will follow value-consistent behaviors (Thøgersen & Ölander, 2006; Cialdini & Jacobson, 2021). In other words, this study predicts that activated environmental personal norms will increase employees' intention to follow PEB, while activated business personal norms will decrease their intention to follow PEB. Overall, the key expectation in this paper is that environmental value statements activate environmental personal norms that then increase employees' intention to follow PEB. On the contrary, financial value statements activate business personal norms that in turn decrease their intention to follow PEB.

This paper uses an experimental design with undergraduate students recruited from a business school at a Brazilian university. In an experimental scenario (Lima, 2021), participants assume the role of an employee responsible for a middle-sized agroindustry that is being pressured to change its current production process because it causes environmental harm. In this experimental scenario, value statement is manipulated in three-levels between-participants (environmental versus financial versus absent); while personal norms are measured, and participants are classified as holding an environmental or a business personal norm. Data analysis includes mean-comparison test, regression analysis, and structural equations-based path analysis.

Results indicate that environmental value statements do not activate environmental personal norms. Results also show that financial versus environmental value statements reduce the activation of business personal norms. Employees' intention to follow PEB is increased by activated environmental personal norms and decreased by activated business personal norms. Finally, environmental relative to financial value statements have a marginal negative effect on employees' intention to follow PEB through activated business personal norms.

The results of this paper provide theoretical as well as practical contributions. Particularly, prior studies have examined the role of value statements in employees' behavior (e.g., Kachelmeier et al., 2016; Aguiar 2021; Akinyele et al., 2022; Andrejkow et al., 2022) and the role of formal and informal controls in promoting sustainability and environmental actions (e.g., Baker et al., 2018; Frare et al., 2022). This paper adds to this literature by showing the process through which a value statement can influence employees' PEB. For organizations, results of this paper highlight that, at least for the sample of participants, value statements may not always be an effective control to foster value-consistent behaviors. While environmental value statements can improve image and perceptions of external stakeholders (e.g., customers, investors etc.) (Urbany, 2005), the results of this study suggest that they can be harmful to employees' intention to follow PEB.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

2.1 Proenvironmental behavior at work and activated personal norms

PEB is associated with the promotion of environmental sustainability (Ones et al., 2015; Aguiar, 2021; Aragão & Alfinito, 2021). Individuals who follow PEB promote environmental benefits or at least avoid causing environmental harm (Steg & Vlek, 2009; Afonso et al., 2016; Lange, 2022). PEB may involve individuals' evaluation of what is right and wrong in the moral

domain, rather than a balance between personal costs and economic benefits (Thøgersen, 1996; Harland et al., 1999).

PEB is a topic of great concern for organizations (Bansal & Roth, 2000) and employees play a key role in developing and implementing proenvironmental actions (Ones et al., 2015; Wesselink et al., 2017). In organizational settings, employees often face decisions in which they have to tradeoff financial returns and environmental protection and thus their intention to follow PEB may involve tradeoffs between short-term costs and long-term benefits.

The challenge with stimulating PEB at work is that this prosocial behavior exhibits a conflict between individual and collective preferences (Karp, 1996; Wang et al., 2021; Aguiar & Lima, 2023). From a standard economic perspective, individuals will follow self-interested behavior (Dawes, 1980; Biel & Thøgersen, 2007) and will not care about environmental protection. Yet, individuals often care about environmental impacts of their actions because they hold or activate personal norms favoring environmental protection (e.g., Steg & Vlek, 2009; Ates, 2020). Examining the role of personal norms can then increase the understanding of employees' PEB (Harland et al., 1999; Coelho et al., 2006; Li et al., 2019).

Personal norms reflect self-expectations that are experienced as feelings of moral obligation toward relevant behaviors and are thus an influential predictor of altruistic behavior (Schwartz, 1977; Schwartz & Howard, 1984; Tamayo & Schwartz, 1993). Particularly, prior studies show that personal norms are the main predictor of prosocial behavior such as PEB (Harland et al., 1999; Rezaei et al., 2019). Several studies have provided support to the influential role of personal norms in explaining PEB (e.g., Thøgersen, 1996; Stern et al., 1999; Aragão & Alfinito, 2021).

Personal norms, however, need to be activated to be able to generate feelings of moral obligation and engage individuals in following value-consistent behaviors (Harland et al., 1999). Personal norm activation depends in part on the decision context (Schwartz, 1977). Personal norms toward environmental protection versus financial returns may then be activated depending on the cues provided in the decision context. Once activated, personal norms are expected to affect the individual intention “to perform or refrain from specific actions” (Schwartz & Howard, 1984, p. 234). Thus, personal norms (e.g., environmental) that are activated in favor of certain behavior (PEB) are associated with a greater chance that employees will follow value-consistent behaviors (Thøgersen & Ölander, 2006).

Individuals carry multiple personal norms at the same time and, in a specific decision context, they can activate a single personal norm that will be central in guiding their behavior or they can activate more than one personal norm that will jointly guide their behavior (March, 1994; Cialdini & Jacobson, 2021). In organizations where a conflict may exist between environmental and financial goals, employees can activate environmental personal norms that favor environmental protection as well as business personal norms that favor financial returns.

As personal norms affect PEB at work (e.g., Li et al., 2019), organizations are expected to develop environmental controls and tools such as a communicated value statement to activate employees' personal norms that can motivate PEB at work (Bebbington, 2007; Feder & Weißenberger, 2021). Yet, despite the importance of enhancing PEB at work, the understanding of whether and how value statements can affect employees' PEB remains an overlooked topic. The purpose of this paper is to contribute to this literature by examining whether value statements can activate value-consistent personal norms that in turn will influence employees' PEB at work.

2.2 Value statements as a control mechanism

Organizations design management controls to affect behavior and increase the chances that employees will follow goal-consistent behavior (Ouchi, 1979; Berry et al., 2009). Prior

literature has highlighted the use of informal controls to foster PEB at work (e.g., Arjaliès & Mundy, 2013; Aguiar, 2021). Informal controls such as value statements can then be quite influential to stimulate employees' PEB (Norris & O'Dwyer, 2004; Durden, 2008) and the achievement of sustainable goals (Baker et al., 2018; Johnstone, 2018).

Value statement includes "The values, beliefs and social norms which are established to influence employees behavior" (Malmi & Brown, 2008, p. 292). Value statements are used by organizations to communicate prioritized goals and values and provide guidance to employees (Simons, 1995; Kachelmeier et al., 2016; Akinyele et al., 2022). They convey at least one prioritized goal that acts as a subjective norm by exerting social pressure on employees to perform value-consistent behaviors (O'Reilly et al., 1991). In this study, value statements signal prioritized goals—environmental or financial—to stimulate employees to perform value-consistent behavior.

Prior studies provide evidence of the behavioral effects of value statements (Kachelmeier et al., 2016; Andrejkow et al., 2022; Aguiar & Lima, 2023). Value statements are found to contribute to the attainment of environmental goals (Baker et al., 2018), particularly, when employees participate in the goal-setting process (Aguiar, 2021). Moreover, subjective norms in favor of environmental protection such as an environmental value statement can stimulate employees' PEB (e.g., Khalid et al., 2022). However, value statements can have undesirable detrimental effects. For instance, Kachelmeier et al. (2016) and Akinyele et al., (2020) show that the presence of a value statement changes employees' production strategy when performing their tasks so that, while inducing them to follow more appropriate strategies, this value-consistent strategy also results in lower productivity.

Additionally, value statements can have negative effects on employees' behavior when cynicism and corporate hypocrisy is perceived in the message and prioritized goals (Urbany, 2005). When associated with corporate social responsibility, employees' negative perceptions can create a vicious circle of rhetoric that perpetuates performance tensions between the desired corporate social responsibility practices and the actual employees' behavior (Winkler et al., 2020).

Overall, prior studies on the behavioral effects of value statements support the expectation that this informal control can exert social pressure on employees to comply with prioritized values. Despite the potential negative effects, the expectations in this study are consistent with the theoretical argument that employees will activate personal norms that are value-consistent with the prioritized goals in the value statement.

2.3 Value statements and activated personal norms

The key argument developed in this paper is that a value statement can activate appropriate personal norms that in turn will lead employees to follow behaviors that are consistent with the activated personal norms. In this section, I develop the hypotheses predicting the effects of value statements on activated personal norms, while in the next section I predict the effects of activated personal norms on employees' intention to follow PEB.

Employees hold multiple personal norms (March, 1994; Cialdini & Jacobson, 2021) and the personal norm that is activated in a given situation depends in part on the decision context (Schwartz, 1977). If the decision context creates conflict between environmental and financial goals, employees can activate environmental personal norms that favor environmental protection versus business personal norms that favor financial returns.

As value statements can act as a subjective norm by exerting social pressure on employees to perform value-consistent behaviors (Kachelmeier et al., 2016; Aguiar, 2021), the overall expectation is that the personal norms primarily activated by employees will be value-consistent with prioritized goals in the value statement. More specifically, an environmental

value statement will primarily activate employees' environmental personal norms that are value-consistent with the prioritized goal. In turn, a financial value statement will primarily activate employees' business personal norms that are value-consistent with the prioritized goal.

This study then expects that, relative to an absent or to a financial value statement, an environmental value statement will stimulate the activation of value-consistent environmental personal norms (Schwartz, 1977; Aguiar, 2021). It is also expected that, relative to an absent or to an environmental value statement, a financial value statement will boost the activation of value-consistent business personal norms (Schwartz, 1977; Aguiar, 2021). Formally, the study separates the first and second hypotheses in two parts each one, two predicting the effects of environmental value statements (H1a/b) and two predicting the effects of financial value statements (H2a/b). The hypotheses are formulated as follows:

- H1a.** An environmental value statement will result in higher activation of environmental personal norms relative to the absence of a value statement.
- H1b.** An environmental value statement will result in higher activation of environmental personal norms relative to a financial value statement.
- H2a.** A financial value statement will result in higher activation of business personal norms relative to the absence of a value statement.
- H2b.** A financial value statement will result in higher activation of business personal norms relative to an environmental value statement.

2.4 Activated personal norms and intention to follow PEB

This study also predicts the effects of activated personal norms on employees' intention to follow PEB. The overall expectation is that the stronger the activated personal norm in favor of a particular behavior, the greater the likelihood that an individual will follow value-consistent behavior (Thøgersen & Ölander, 2006; Li et al., 2019). More specifically, since environmental personal norms are value-consistent with PEB, activated environmental personal norms will lead employees to increase their intention to follow PEB. Conversely, since business personal norms are typically not value-consistent with PEB, activated business personal norms will lead employees to decrease their intention to follow PEB.

In sum, this study expects that employees' intention to follow PEB are higher when activated environmental personal norms are higher, but lower when activated business personal norms are higher (Thøgersen & Ölander, 2006; Li et al., 2019). Formally, the third hypothesis is separated in two parts, one predicting the effects of activated environmental personal norms on intention to follow PEB and other predicting the effects of activated business personal norms on intention to follow PEB. The hypotheses are formulated as follows:

- H3a:** Activated environmental personal norms increase employees' intention to follow PEB.
- H3b:** Activated business personal norms decrease employees' intention to follow PEB.

Overall, this study predicts that communicated value statements indirectly affect PEB through the activation of employees' personal norms. Precisely, I expect that activated environmental personal norms explain the increased intention to follow PEB when an environmental value statement is communicated. Conversely, I expect that activated business personal norms explain the decreased intention to follow PEB when a financial value statement is communicated. These expectations are consistent with the theoretical argument that employees will activate personal norms that are value-consistent with the prioritized goals in

the value statement (Schwartz, 1977; Aguiar, 2021); in turn, the activated personal norms will lead to value-congruent behaviors (Thøgersen & Ölander, 2006; Li et al., 2019).

While I expect no tension in the link between activated personal norms and the behaviors that employees will pursue, I acknowledge a tension in the link between the value statement and activated personal norms. Because employees can perceive the message and prioritized goals in the value statement as simply cynical corporate rhetoric (Urbany, 2005; Winkler et al., 2020), activated personal norms may not necessarily be value-consistent with prioritized goals in the value statement. If this is the case, an environmental value statement may not necessarily activate environmental personal norms; similarly, a financial value statement may not necessarily activate business personal norms.

3. METHODOLOGY

3.1 Participants

Participants are 125 undergraduate students recruited from a business school at a Brazilian university. The average age is 22.8 years, and 72.8 percent are male. Their major includes economics (30.4 percent), business (30.4 percent), accounting (32.8 percent), and actuarial sciences (6.4 percent). About half of the participants (48.0 percent) are first-year students. 46.4 percent are currently working, and their average professional experience is 1.7 years.

Undergraduate students are appropriate participants for experiments that require specific knowledge, but do not require specific experience (Mortensen et al., 2012; Trottier & Gordon, 2018). In the research setting, participants have to make a tradeoff between environmental protection and financial returns and are not required to have prior experience. All participants have completed an introductory microeconomics course and understand the concept of cost-benefit analysis and tradeoffs; they can then be regarded as good proxy for the type of decision required.

3.2 Procedures

Experimental procedures are the same in all conditions (Figure 1). Participants obtain access to the experimental task through a link sent to their electronic address. The link leads to the Qualtrics® software where the task is built. The software randomly assigns them to experimental conditions. Participants read a consent form and indicate their agreement to participate. Next, they read general instructions on the experimental role and sequence. Participants receive specific instructions relative to the experimental setting. The manipulation is inserted as part of the specific instructions. Participants indicate their intention to follow PEB and respond to post-experimental questions.

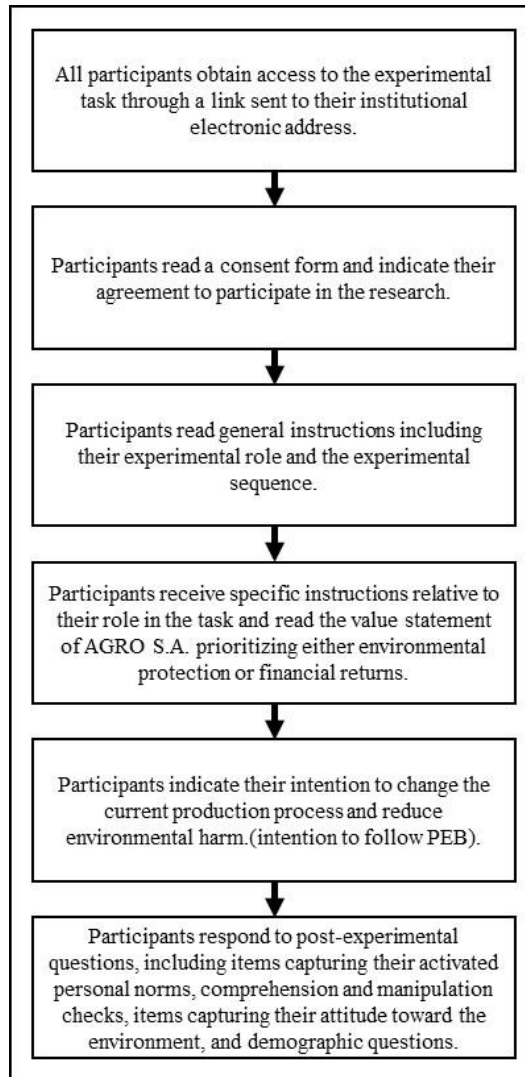


Figure 1. Experimental procedure steps.

3.3 Experimental task

The experimental task is adapted from Tenbrunsel and Messick (1999) and refers to a scenario-based experiment to increase realism (e.g., Lima, 2021). Participants assume the role of an employee responsible for a middle-sized agroindustry named AGRO S.A. whose main product is soybean. They read that the organization currently uses Pesticide A in the production process that causes environmental harm, such as increased bacterial resistance to antibiotics, decreased bee population, and increased soil and water contamination.

Participants are told that environmentalists are pressing the organization to combine Pesticide A with Biopesticides, which are produced from fungi and bacteria and affect only the pests to be removed from the production process. Biopesticides have the same purchase cost as Pesticide A but need more frequent reapplication and require special storage. Combined, these two features cause the total production cost to increase by 3 percent with each 10 percent increase in the proportional use of Biopesticide: a mixture of 90 percent of Pesticide A and 10 percent of Biopesticides increases by 3 percent the total production cost; a mixture of 80 percent of Pesticide A and 20 percent of Biopesticides increases by 6 percent the total production cost; and so on.

Further, participants read that the sole use (100 percent) of Biopesticides can eliminate the negative environmental impacts of the current production process. To make the decision

not observable to outsiders, participants learn that environmentalists cannot monitor the amount of Biopesticide they decide to use in the production process. In this scenario, participants indicate the percentage of Biopesticides they would use in the final combination of pesticides. The decision context places participants in a conflict between environmental protection and financial returns so that the higher the percentage of Biopesticides in the final combination, the higher the total production cost.

Participants answer two comprehension questions to check for understanding of the decision context. First, 96.8 percent correctly answer that using more Biopesticide reduces the negative impacts on the environment. Second, 93.6 percent correctly answer that the combined use of Pesticide A and Biopesticide increases the production cost. Together, 12 participants (9.6 percent) fail in the comprehension questions: seven in the absent value statement condition, two in the environmental value statement condition, and three in the financial value statement condition. Main results are inferentially the same if I exclude participants who failed in these questions, with the main difference being the test of H2b that remains significant, but only marginally ($t = 0.162$; one-tailed $p = 0.055$). I then decide to include the entire sample of participants (125) in the main analysis.

3.4 Variable manipulation

Value statement is manipulated in three levels between-participants. In the environmental condition ($N = 46$), participants read a message sent by the main executive stating that: “*We care about the protection and preservation of the environment; we encourage and promote actions for sustainable environmental development.*” In the financial condition ($N = 40$), the message is: “*We care about generating substantial financial returns; we encourage and promote actions for the organization’s profitable growth.*” An absent condition ($N = 39$) where participants do not receive a value statement is also included to serve as a baseline condition.

3.5 Manipulation check

To test the validity of the value statement manipulation, participants indicate the level of agreement to two questions in a seven-point Likert scale (1 - totally disagree; 7 - totally agree), which are: ‘How much you feel AGRO S.A. values environmental protection and preservation’ and ‘How much you feel AGRO S.A. values substantial financial returns.’ I calculate the difference between participants’ level of agreement to the first and the second assertion. The higher and more positive the difference means that participants feel that the organization puts more value to environmental protection than to financial returns, while the lower and more negative values signal more weight placed on financial returns than to environmental protection. The difference varies from -6 to +4 ($M = -2.08$, $SD = 2.57$), being highest in the absent condition (-1.44), higher in the environmental condition (-2.11), and lower in the financial condition (-2.68). The negative means reflect the fact that participants generally agree more with the second assertion than the first assertion.

ANOVA results indicate that the differences between participants’ level of agreement with the two sentences are significant ($F = 2.36$, one-tailed $p = 0.05$). Consistent with an effective value statement manipulation, participants in the environmental condition feel the organization values more environmental protection than financial returns to a greater extent than participants in the financial condition.

3.6 Dependent variables

Intention to follow PEB is measured by asking participants to indicate the percentage of Biopesticides they would use in the final combination of pesticides. Intention to follow PEB is higher (lower) in situations where participants intend to use a higher (lower) percentage of Biopesticides in the final combination of pesticides. Intention to follow PEB varies from 0 to 100 ($M = 51.30$, $SD = 32.63$). Participants' intention to follow PEB does not differ across gender ($t = -0.927$, two-tailed $p = 0.356$).

Personal norms are measured by asking participants to indicate their level of agreement to two items in a seven-point Likert scale (1 - totally disagree; 7 - totally agree), which are: "I clearly understand the importance of protecting the environment" that refers to environmental personal norm; and "I clearly understand the importance of managing the company profitably" that refers to business personal norm.

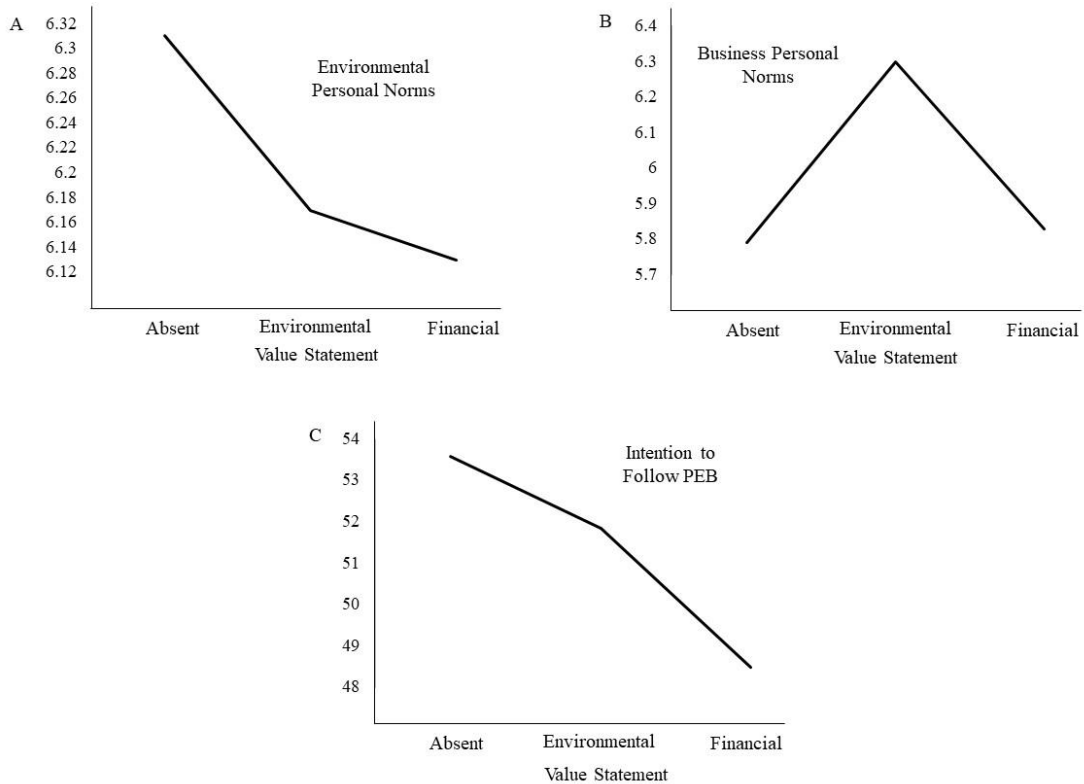
4. RESULTS AND DISCUSSION

4.1 Descriptive statistics

Table 1 and Figure 2 present descriptive statistics for environmental personal norms, business personal norms, and intention to follow PEB. Panel A of Figure 2 shows that environmental personal norm is higher in the absent (6.31), lower in the environmental (6.17), and lowest in the financial (6.13) value statement conditions. The patterns of environmental personal norms are consistent with H1b, but not with H1a. Second, Panel B of Figure 2 reveals that business personal norm is higher in the environmental (6.30), lower in the financial (5.83), and lowest in the absent (5.79) value statement conditions. The patterns of business personal norms are consistent with H2a, but not with H2b. Third, Panel C of Figure 2 depicts that intention to follow PEB is higher in the absent (53.56), lower in the environmental (51.82), and lowest in the financial (46.48) value statement conditions. Noticeable, standard deviation for intention to follow PEB (2.92) is larger than for the two personal norms: environmental (0.11) and personal (0.11).

	Value Statement			
	Absent	Environmental	Financial	Total
Environmental Personal Norm				
Mean	6.31	6.17	6.13	6.20
Standard Deviation	(0.18)	(0.19)	(0.21)	(0.11)
Number of Participants	[39]	[46]	[40]	[125]
Business Personal Norm				
Mean	5.79	6.30	5.83	6.00
Standard Deviation	(0.21)	(0.14)	(0.21)	(0.11)
Number of Participants	[39]	[46]	[40]	[125]
Pro-Environmental Behavior				
Mean	53.56	51.82	48.48	51.30
Standard Deviation	(4.94)	(4.72)	(5.61)	(2.92)
Number of Participants	[39]	[46]	[40]	[125]

Table 1. Descriptive statistics.



Panel A shows mean Environmental Personal Norms by value statement condition.
Panel B shows mean Business Personal Norms by value statement condition.
Panel C shows mean Intention to Follow PEB by value statement condition.
Figure 2. Descriptive by value statement condition.

4.2 Hypothesis test

H1a predicts that an environmental value statement will result in higher activation of environmental personal norms relative to the absence of a value statement. H1a is examined using mean-comparison test (*t*-test) with environmental personal norms as dependent variable and value statement (environmental versus absent) as independent variable. Panel A of Table 2 shows that environmental personal norms do not differ across the two value statement conditions ($t = 0.505$; one-tailed $p = 0.307$). Thus, relative to the absent condition, an environmental value statement does not activate employee participants' environmental personal norms, providing no support to H1a. Then, at least for the sample of participants of this study, this result is contrary to the expectation that, relative to an absent value statement, an environmental value statement stimulates the activation of value-consistent environmental personal norms (Schwartz, 1977; Aguiar, 2021).

Panel A – Environmental versus Absent Value Statement Condition		
Factor	<i>t</i> -statistic	<i>p</i> -value
Value Statement Condition	0.505	0.307
Panel B – Environmental versus Financial Value Statement Condition		
Factor	<i>t</i> -statistic	<i>p</i> -value
Value Statement Condition	0.172	0.432

Notes: The dependent variable in this analysis is *Environmental Personal Norm*, which is participants' response to the questionnaire statement "I clearly understand the importance of protecting the environment", on a 7-point Likert scale, ranging from (1) totally disagree to (7) totally agree.

In **Panel A**, Value Statement Condition is equal to 1 in the condition the participant receives a message sent by the main executive stating that: "*We care about the protection and preservation of the environment; we encourage and promote actions for sustainable environmental development*", and 0 otherwise.

The analysis in **Panel A** excludes the data from the *Financial Value Statement Condition*.

In **Panel B**, Value Statement Condition is equal to 1 in the financial value statement condition, and 0 in the environmental value statement condition.

The analysis in **Panel B** excludes the data from the *Absent Value Statement Condition*.

The analysis reported is a mean-comparison test (*t*-test).

Reported *p*-values are one-sided stemming from directional predictions.

Table 2. ANOVA Results (Dependent variable = Environmental Personal Norm).

H1b predicts that an environmental value statement will result in higher activation of environmental personal norms relative to a financial value statement. I examine H1b using mean-comparison test with environmental personal norms as dependent variable and environmental versus financial value statement as independent variable. Environmental personal norms are higher in the environmental than the financial value statement condition, but Panel B of Table 2 reveal that the difference is not significant ($t = 0.172$; one-tailed $p = 0.432$). Thus, relative to the financial condition, an environmental value statement does not activate employee participants' environmental personal norms. H1b is not supported. Thus, while in the expected direction, at least for the study's participants, this result is not supportive of the expectation that an environmental relative to a financial value statement stimulates the activation of value-consistent environmental personal norms (Schwartz, 1977; Aguiar, 2021).

H2a predicts that a financial value statement will result in higher activation of business personal norms relative to the absence of a value statement. H2a is examined using mean-comparison test with business personal norms as dependent variable and value statement conditions (financial versus absent) as independent variable. Panel A of Table 3 shows that business personal norms do not differ across the two value statement conditions ($t = -0.100$; one-tailed $p = 0.460$). Thus, relative to the absent condition, a financial value statement does not activate employee participants' business personal norm, not supporting H2a. At least for the sample of participants of this study, this result is contrary to the expectation that, relative to an absent value statement, a financial value statement stimulates the activation of value-consistent business personal norms (Schwartz, 1977; Aguiar, 2021).

Panel A – Financial versus Absent Value Statement Condition		
Factor	<i>t</i> -statistic	<i>p</i> -value
Value Statement Condition	-0.100	0.460
Panel B –Financial versus Environmental Value Statement Condition		
Factor	<i>t</i> -statistic	<i>p</i> -value
Value Statement Condition	1.924	0.029

Notes: The dependent variable in this analysis is *Business Personal Norm*, which is participants' response to the questionnaire statement "I clearly understand the importance of managing the company profitably", on a 7-point Likert scale, ranging from (1) totally disagree to (7) totally agree.

In **Panel A**, Value Statement Condition is equal to 1 in the condition the participant receives a message sent by the main executive stating that: "*We care about generating substantial financial returns; we encourage and promote actions for the organization's profitable growth*", and 0 otherwise.

The analysis in **Panel A** excludes the data from the *Environmental Value Statement Condition*.

In **Panel B**, Value Statement Condition is equal to 1 in the financial value statement condition, and 0 in the environmental value statement condition.

The analysis in **Panel B** excludes the data from the *Absent Value Statement Condition*.

The analysis reported is a mean-comparison test (*t*-test).

Reported p-values are one-sided stemming from directional predictions.

Table 3. ANOVA Results (Dependent variable = Business Personal Norm).

H2b predicts that a financial value statement will result in higher activation of business personal norms relative to an environmental value statement. I use mean-comparison test with business personal norms as dependent variable and value statement conditions (financial versus environmental) as independent variable. Panel B of Table 3 shows that business personal norms differ across the two value statement conditions ($t=1.924$; one-tailed $p=0.029$). Surprisingly, as shown in Table 1, activation of business personal norms is higher for participants in the environmental (6.30) than the financial (5.83) value statement. Results are in opposite direction than predicted in H2b. While significant, at least for the study’s participants, this result is in the opposite direction than the expectation that, relative to an environmental value statement, a business value statement stimulates the activation of value-consistent environmental personal norms (Schwartz, 1977; Aguiar, 2021).

H3a predicts that activated environmental personal norms increase employees’ intention to follow PEB. H3a is examined using regression analysis with intention to follow PEB as dependent variable and environmental personal norms as independent variable for all value statement conditions (environmental, financial, and absent). Table 4 shows that activated environmental personal norms increase employee participants’ intention to follow PEB ($t = 5.20$; one-tailed $p = 0.000$), consistent with H3a. Given the study’s participants, this result provides support to the expectation that employees’ intention to follow PEB are higher when activated environmental personal norms are higher (Thøgersen & Ölander, 2006; Li et al., 2019).

Factor	Coefficient	t-statistic	p-value
Environmental Personal Norm	10.51	5.20	0.000
Business Personal Norm	-8.24	-4.02	0.000

Notes: The dependent variable in this analysis is *Intention to follow Pro-Environmental Behavior (PEB)*, which is participants’ indication of the percentage of Biopesticides they would use in the final combination of pesticides to be applied in the soybean production process.

Environmental Personal Norm is participants’ response to the questionnaire statement “I clearly understand the importance of protecting the environment”, on a 7-point Likert scale, ranging from (1) totally disagree to (7) totally agree.

Business Personal Norm is participants’ response to the questionnaire statement “I clearly understand the importance of managing the company profitably”, on a 7-point Likert scale, ranging from (1) totally disagree to (7) totally agree.

The analysis includes the data from the three value statement conditions: *Environmental*, *Financial*, and *Absent*. The analysis reported is regression analysis.

Reported p-values are one-sided stemming from directional predictions.

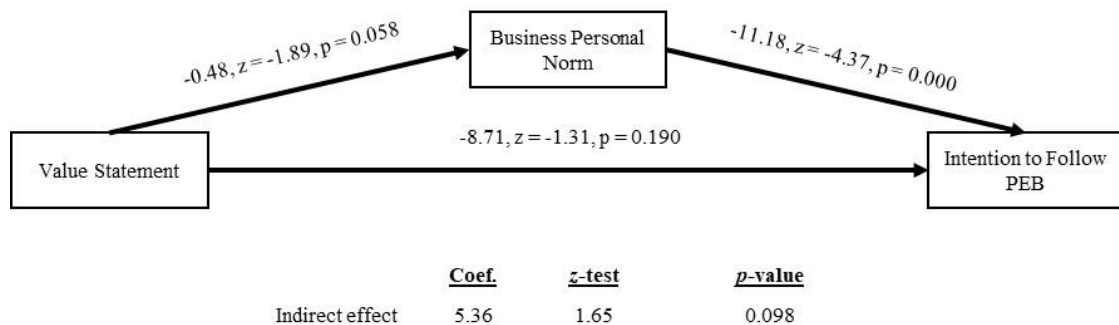
Table 4. Regression analysis (Dependent variable = Intention to follow PEB).

H3b predicts that activated business personal norms decrease employees’ intention to follow PEB. H3b is examined using regression analysis with intention to follow PEB as dependent variable and business personal norms as independent variable for all value statement conditions (environmental, financial, and absent). Table 4 shows that activated business personal norms decrease employee participants’ intention to follow PEB ($t = -4.02$; one-tailed $p = 0.000$), consistent with H3b. At least for the sample of participants of this study, this result provides support to the expectation that employees’ intention to follow PEB are lower when activated business personal norms are higher (Thøgersen & Ölander, 2006; Li et al., 2019).

4.3 Indirect effects of value statements on PEB

The main argument developed in this paper is that a value statement can activate appropriate personal norms that in turn will lead employees to follow behaviors that are consistent with the activated personal norms. Then, this study expects an indirect effect of value statements on employees' intention to follow PEB through activated personal norms. As results reveal that environmental versus financial value statements activate business personal norms and that activated business personal norms decrease employee participants' intention to follow PEB, the study examines whether activated business personal norms can explain a potential negative effect of environmental versus financial value statement on PEB at work.

To test this, structural equations-based path analysis (SEM) using robust estimation with value statement (environmental versus financial) as independent variable, business personal norms as process variable, and intention to follow PEB as dependent variable. The analysis is based on the variance-covariance method and is run in the Stata software. Figure 3 shows the path analysis of the effects of environmental versus financial value statement through activated business personal norms. Overall, the goodness of fit is confirmed with a standardized root mean squared residual below 0.08. Business personal norms are higher in the environmental (6.30) than the financial (5.83) value statement (z -test = -1.89, two-tailed, p = 0.058). Results show that business personal norms decrease employee participants' intention to follow PEB (z -test = -4.37, two-tailed, p = 0.000). Value statement has no direct effect on employee participants' intention to follow PEB (z -test = -1.31, two-tailed, p = 0.190). Finally, environmental versus financial value statement has a marginal negative indirect effect on PEB through activated business personal norms (z -test = 1.65, two-tailed, p = 0.098).



Notes: The dependent variable in this analysis is *Intention to follow Proenvironmental Behavior* (PEB), which is participants' indication of the percentage of Biopesticides they would use in the final combination of pesticides to be applied in the soybean production process.

Business Personal Norm is participants' response to the questionnaire statement "I clearly understand the importance of managing the company profitably", on a 7-point Likert scale, ranging from (1) totally disagree to (7) totally agree.

Value Statement is equal to 0 for environmental value statement and 1 for financial value statement.

The analysis excludes the data from the Absent Value Statement Condition.

The analysis reported is a structural equations-based path analysis using robust estimation.

The goodness of fit is confirmed with a standardized root mean squared residual below 0.08

Reported p-values are two-sided

Figure 3. Path analysis of the effects of value statement (environmental versus financial) on intention to follow PEB.

Overall, the SEM analysis suggests that an environmental versus a financial value statement activates a business personal norm. In turn, the activated business personal norm has a negative effect on employee participants' intention to follow PEB. Then, while consistent with the main argument developed in this study in the sense that a value statement activates personal norms that are further responsible for inducing employees' intention to follow PEB, the activated personal norms are not value-consistent as expected (Schwartz, 1977; Aguiar, 2021). At least

for the study's participants, rather than activating environmental personal norms to stimulate employees' PEB, the communication of an environmental relative to a financial value statement activates a business personal norm that then reduces employees' intention to follow PEB.

5. CONCLUSION

This study examines the process through which a communicated value statement can affect employees' intention to follow PEB. The main argument in this paper is that a value statement can activate appropriate personal norms that in turn will lead employees to follow behaviors that are consistent with the activated personal norms.

Results from a sample of undergraduate students in the role of employees show that environmental value statements have no effect on activated environmental personal norms and intention to follow PEB, relative to absent and financial value statements. Moreover, relative to absent value statements, financial value statements do not activate business personal norms. Results show that, relative to environmental value statements, financial value statements have a lower effect on employees' activation of business personal norms. Results also reveal that the activation of environmental personal norms increases intention to follow PEB, while activated business personal norms decreases intention to follow PEB. Finally, business personal norms marginally explain the reduced intention to follow PEB when an environmental versus financial value statement is communicated. Then, contrary to expectations that employees would activate value-consistent personal norms (Schwartz, 1977; Aguiar, 2021) that would thus lead them to follow value-consistent behaviors (Thøgersen & Ölander, 2006; Li et al., 2019), results from the study's participants indicate that a value statement prioritizing environmental protection, relative to a financial value statement, activates a business personal norm that in turn reduces employees' intention to follow PEB. This surprising result can be an indicative that employees perceive the message and prioritized goals in the value statement as simply cynical corporate rhetoric (Urbany, 2005; Winkler et al., 2020).

The findings of this study have implications for both research and practice. Research concerned about the environmental effects of organizational actions has paid increased attention to the understanding of determinants of employees' PEB at work (Paillé & Boral, 2013; Wesselink et al., 2017; Tian & Robertson, 2019; Frare et al., 2022). This paper adds to this literature by showing whether and how the social pressures exerted by a value statement can affect employees' intention to follow PEB. In a setting where employee participants have to tradeoff environmental protection and financial returns, results indicate that environmental relative to financial value statements can be harmful to stimulate employees' intention to follow PEB due to the activation of personal norms focused primarily on tradeoffs between costs and benefits of the decision. These results are consistent with studies showing the harmful behavioral effects of value statements (e.g., Kachelmeier et al., 2016; Akinyele et al., 2020), particularly, if a value statement that prioritizes environmental protection is perceived as a cynical corporate message (Urbany, 2005; Winkler et al., 2020).

This study also provides insights to organizations by highlighting the potential detrimental effects of environmental value statements. On the one hand, organizations willing to boost employees' PEB does not benefit from value statements prioritizing environmental protection relative to its absence or to value statements prioritizing financial return. In the research setting, environmental value statements are not effective in activating employee participants' environmental personal norms that could in turn promote their intention to follow PEB. On the other hand, at least based on the study's participants, organizations can damage employees' PEB by communicating an environmental value statement, relative to a financial value statement, as the environmental value statement activates business personal norms that decrease employees' intention to follow PEB. Hence, rather than communicating an

environmental value statement, organizations willing to stimulate PEB at work can communicate value statements with no reference to environmental concerns combined with screening and selection processes that ensure the selection of employees with personal norms toward environmental protection as well as socialization processes that help employees activate environmental personal norms. Alternatively, organizations can use formal controls such as nonfinancial measurement basis to stimulate prosocial initiatives (e.g., Church et al., 2019).

This study has limitations that provide opportunities for future research. First, the study examines the effects of value statements in the absence of formal controls. Yet, prior studies (e.g., Kachelmeier et al., 2016; Akyniele et al., 2020) show that the effects of value statements depend on the presence of formal controls. In addition, prior studies have shown that formal controls can also affect PEB at work (e.g., Aguiar, 2021; Frare et al., 2022). Then, future studies could examine the effects of value statements on activated personal norms and PEB at work in the presence of incentive schemes based, for instance, on environmental performance measures (Rodrigue et al., 2013). Second, a potential explanation for the effects of the value statement on activated personal norms is that employees perceive the communicated corporate messages as cynical. Future studies could investigate this factor as an important condition for the value statement effectiveness in terms of stimulating value-consistent employees' behavior. Finally, while the main results can be generalized to the theory developed in this study, they have to be interpreted with caution and not be generalized beyond to the sample of the study's participants.

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